Remarks

Independent claims 21, 31, 34, and 37 and dependent claims 22, 24-26, 29, 30, 32, 33, 35, and 38-40 are currently pending. Claims 23, 27, and 28 have been withdrawn. The rejections in the non-final Office Action having a mailing date of December 15, 2006 are addressed below in the order presented in the Office Action.

Rejections Under 35 U.S.C. § 112

Claims 30, 33-35, 38, and 40 have been rejected under 35 U.S.C. § 112, second paragraph, as failing to point out and distinctly claim the subject matter that Applicants regard as the invention. Applicants disagree that claims 30, 33, 34, and 40 are inconsistent with the specification, but, to expedite examination, each of these claims has been amended to recite that the housing comprises the reflector. Claims 35 and 38 have also been amended to more clearly describe the orientation of the recited elements. Accordingly, Applicants request the withdrawal of this rejection.

Rejections Under 35 U.S.C. § 103

Rejection of Claims 21, 22, 24-26, 29, 31, 32, and 37-39.

The Examiner has rejected claims 21, 22, 24-26, 29, 31, 32, and 37-39 under 35 U.S.C. § 103(a) as being unpatentable over presumably U.S. Patent No. 5,467,791 ("Kato") in view of U.S. Patent No. 5,200,666 ("Walter"). Applicants respectfully traverse this rejection.

The Office Action states that the prior art wash chamber discussed in Kato (element 31 in Fig. 3) teaches the housing recited in the pending claims. (Office Action, para. 7, p. 6.) The Office Action then states that it would be obvious to modify the prior art housing by "positioning (making integral)" pluralities of transducers as done in the housing taught by Kato. (*Id.*)

To the contrary, it would not be obvious to make this modification as Kato expressly teaches away from such a combination, and, accordingly, one of skill in the art would not be motivated to make such a combination. Kato teaches a *movable* housing that holds transducers. (Kato, col. 6, ll. 7-12; Fig. 5) To the contrary, the prior art housing in Fig. 3 does not move, and instead the transducer is moved up and down in a manner similar to the movable housing that holds the transducers of Kato. (Kato, col. 3, ll. 36-40; Fig. 3)

Importantly, Kato teaches that the prior art housing and transducer configuration results in radioactive contamination of the transducer. (Kato, col. 3, ll. 54-66, stating "An ultrasonic cleaning device constructed as above is subject to the following problems: . . . The ultrasonic transducer is arranged in the wash chamber together with the fuel assembly so the ultrasonic transducer is contaminated by radioactive substances . . . .") Based on this problem, Kato describes a housing for transducers that has an upper cover (132) with an intake or opening (133) and a lower cover (134) with an outlet or second opening (135). (Kato, col. 6, l. 42 to col. 7, l. 8; Fig. 6). The outlet (135) in the lower cover (134) is connected to a pump and filter. (*Id.*) Water is passed through the top cover, and any crud that is removed from the fuel assembly is then passed with the water through the outlet (135) to the pump and filter, which removes the solids from the water. (*Id.*) In this manner, contamination of the transducers is reduced. (*Id.*) Kato's placement of the transducers in such a housing, so as to prevent their contamination, does not provide any suggestion or motivation to simply attach transducers directly to the prior art housing of Fig. 3 since such would result in exactly the transducer contamination problem recognized by Kato as a problem with the prior art configuration—a problem that Kato was trying to avoid.

The Office Action also states that Kato anticipates the feature of ultrasonic transducers positioned on a cylindrical housing because Kato states that the housing could be cylindrical in shape. (Office Action, para. 7, pp. 6-7.) However, such teaching does not translate to a teaching or suggestion of an *elongated* housing as recited in the claims. Kato, for example, does not teach any elongation of the moveable housing if its shape were changed from square to cylindrical. One of skill in the art would still view the housing as a short, squat housing that is configured to move up and down along the fuel assembly or visa versa. Specifically, the moveable housing of Kato cannot be construed as teaching a housing having a length at least as long as the fuel assembly as recited in independent claim 21.

The Office Action also concludes that it would be obvious to replace the transducers used in Kato with transducers taught by Walter. (Office Action, para. 7, p. 7). This conclusion is based upon a belief that omnidirectional transducers could easily be substituted into the design of Kato. To the contrary, and as described in the Declaration of David Gross dated January 15, 2005 (the "Gross Declaration), such is not the case.

The Office Action appears to ignore the statements in the Gross Declaration that establish that one of skill in the art would not replace the planar transducers of Kato with

omnidirectional transducers. (Gross Decl., para. 10 and 11.) The Office Action states that Kato is being applied in a manner different from its previous application. (Office Action, para. 2, pp. 3-4.) Specifically, the present Office Action appears to rely upon the teaching in Kato that the *housing* for the transducers could optionally be cylindrical. (Office Action, para. 2, p. 4, emphasis added.)

The Gross Declaration specifically states that the use of omnidirectional transducers would not produce energy waves incident at right angles as taught by Kato. For energy from omnidirectional transducers to be incident on the wave reflecting structure, the reflecting structure would need to be cylindrical, *and* all of the transducers would need to be concentric with the reflector or in the center of the cylindrical object. (Gross Decl. para. 11(b).) The fact that Kato states that the housing could be cylindrical is only directed to the *shape* of the housing and does not suggest that the orientation of the transducers would be different. Even if the housing shape were cylindrical, Kato does not teach or suggest a different orientation of transducers, as Kato relies upon the transducer orientation as taught to achieve the desired results (e.g., ultrasonic waves incident at right angles, Kato, col. 7, l. 47). Accordingly, the conclusion in the Gross Declaration that one of skill in the art would not replace the planar transducers in Kato with omnidirectional transducers is still applicable as it is based at least in part upon the orientation of transducers as taught by Kato. Therefore, one of skill in the art would not be motivated to replace the planar transducers taught by Kato with omnidirectional transducers as recited in the claims.

Specifically regarding independent claim 31 and corresponding dependent claim 32 and independent claim 37 and corresponding dependent claims 38 and 39, Applicants note that each of these claims, either expressly or based upon their dependency, recite a node structure that is an approximate multiple of a spacing between the fuel rods of a fuel assembly. The Office Action does not appear to provide a basis for the rejection of these claims or an indication of the teaching of this recited element. Accordingly, on this basis, Applicants submit that a prima facie case of obviousness has not been made as to these claims.

Based on the foregoing, Applicants request the withdrawal of this rejection as to independent claims 21, 31, 34, and 37 and corresponding dependent claims 22, 24-26, 29, 32, 38, and 39.

Rejection of Claims 30, 33-35, and 40

The Examiner has rejected claims 30, 33-35, and 40 under 35 U.S.C. § 103(a) as being unpatentable over Kato and Walter as applied to claims 21, 31, 37, and 38 above, and further in view of U.S. Patent No. 5,377,237 ("Richardson"). Applicants respectfully traverse this rejection.

As this rejection is based upon the combination of Kato and Walter as applied to claims 21, 31, 37, and 38, Applicants arguments above apply equally here. Therefore, withdrawal of this rejection is requested on this basis alone.

Conclusion

In view of the above considerations, Applicants believe that all of the claims are in condition for allowance and respectfully request the same.

Applicants believe that no other fees are due other than that associated with the request for an extension of time, authorized above. To the extent that any additional fee is required, Applicants hereby authorize such fee to be charged to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310 (order no. 060825-0306 US). A copy of this sheet is enclosed for such purpose.

Respectfully submitted,

Date: May 15, 2007 By: _____ 40,756

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